

What is claimed is:

1. A method for queuing a mobile station in a wireless communication system comprising:

receiving a request from the mobile station to originate a call;

5 determining whether the mobile station may be assigned a dedicated radio frequency (RF) resource in a service area of the mobile station;

in response to determining not to assign a dedicated RF resource to the mobile station, adding the call to a call queue;

subsequent to adding the call to the call queue, re-determining whether the mobile station may be assigned a dedicated RF resource in the service area; and

10 in response to determining, subsequent to adding the call to the call queue, that the mobile station may be assigned a dedicated RF resource, conveying an assignment of a dedicated traffic channel to the mobile station without first requesting the mobile station to re-originate.

15 2. The method of claim 1, wherein re-determining whether the mobile station may be assigned a dedicated radio frequency (RF) resource comprises determining whether the mobile station may be assigned a dedicated RF in a service area of the mobile station based on signal strengths reported by the mobile station.

20 3. The method of claim 1, wherein re-determining whether the mobile station may be assigned a dedicated radio frequency (RF) resource comprises determining whether the mobile station may be assigned a dedicated RF in a service area of the mobile station based on a last Radio Environment Message received from the mobile station.

25 4. The method of claim 1, further comprising:

starting a timer;

when the timer expires prior to determining that the mobile station may be assigned a dedicated RF resource in the service area, aborting the call and deleting the call from the queue; and

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wherein conveying an assignment of a dedicated radio frequency (RF) resource comprises conveying an assignment of a traffic channel to the mobile station in response to determining, subsequent to adding the call to a call queue and prior to the expiration of the timer, that the mobile station may be assigned a dedicated RF resource in the service area.

5 5. The method of claim 1, further comprising, in response to determining not to assign a dedicated RF resource to the mobile station, instructing the mobile station to transition to a Radio Environment Reporting mode.

10 6. The method of claim 5, wherein the Radio Environment Reporting mode comprises a Control Hold state.

15 7. The method of claim 5, further comprising, in response to determining, subsequent to adding the call to the call queue, that the mobile station may be assigned a dedicated RF resource, instructing the mobile station to transition to a Traffic state.

8. A Controller comprising

at least one memory device that maintains a call queue; and

a processor coupled to the at least one memory device that receives a request from the mobile station to originate a call, determines whether the mobile station may be assigned a dedicated radio frequency (RF) resource in a service area of the mobile station, in response to determining not to assign a dedicated RF resource to the mobile station, adds the call to a call queue, subsequent to adding the call to the call queue, re-determines whether the mobile station may be assigned a dedicated RF resource in the service area, and in response to determining, subsequent to adding the call to the call queue, that the mobile station may be assigned a dedicated RF resource, conveys an assignment of a traffic channel to the mobile station without first requesting the mobile station to re-originate.

9. The Controller of claim 8, further comprising a timer coupled to the processor, wherein the processor, subsequent to adding the call to a call queue, starts the timer, wherein, when the timer expires prior to determining that the mobile station may be assigned a dedicated radio frequency (RF) resource in the service area, the processor aborts the call and deletes the call from the queue, and wherein the processor conveys an assignment of a dedicated RF resource by conveying an assignment of a dedicated RF resource to the mobile station in response to determining, subsequent adding the call to a call queue and prior to the expiration of the timer, that the mobile station may be assigned a dedicated RF resource in the service area.

10. A method for queuing a mobile station in a wireless communication system comprising:

receiving a call intended for the mobile station;

determining whether the mobile station may be assigned a dedicated radio
5 frequency (RF) resource in a service area of the mobile station;

in response to determining not to assign a dedicated RF resource to the mobile station, adding the call to a call queue;

subsequent to adding the call to the call queue, re-determining whether the mobile station may be assigned a dedicated RF resource in the service area; and

10 in response to determining, subsequent to adding the call to the call queue, that the mobile station may be assigned a dedicated RF resource, conveying an assignment of a traffic channel to the mobile station without first paging the mobile station.

11. The method of claim 10, wherein re-determining whether the mobile station may
15 be assigned a dedicated radio frequency (RF) resource comprises determining whether the mobile station may be assigned a dedicated RF in a service area of the mobile station based on signal strengths reported by the mobile station.

12. The method of claim 10, wherein re-determining whether the mobile station may
20 be assigned a dedicated radio frequency (RF) resource comprises determining whether the mobile station may be assigned a dedicated RF in a service area of the mobile station based on a last Radio Environment Message received from the mobile station.

13. The method of claim 10, wherein determining whether the mobile station may be
25 assigned a dedicated radio frequency (RF) resource comprises:

paging the mobile station;

in response to paging, receiving a page response from the mobile station; and

in response to receiving the page response, determining whether the mobile station may be assigned a dedicated RF resource in a service area of the mobile station.

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14. The method of claim 10, further comprising:
starting a timer;

when the timer expires prior to determining that the mobile station may be assigned a dedicated RF resource in the service area, aborting the call and deleting the call from the queue; and

5 wherein conveying an assignment of a dedicated radio frequency (RF) resource comprises conveying an assignment of a dedicated RF resource to the mobile station in response to determining, subsequent adding the call to a call queue and prior to the expiration of the timer, that the mobile station may be assigned a dedicated RF resource in the service area.

10 15. The method of claim 14, further comprising, when the timer expires prior to determining that the mobile station may be assigned a dedicated radio frequency resource in the service area, deleting the call from the queue.

15 16. The method of claim 14, further comprising, when the timer expires prior to determining that the mobile station may be assigned a dedicated radio frequency resource in the service area, notifying an originating end of the call that the call has been aborted.

20 17. The method of claim 10, further comprising, in response to determining not to assign a dedicated RF resource to the mobile station, instructing the mobile station to transition to a Radio Environment Reporting mode.

18. The method of claim 17, wherein the Radio Environment Reporting mode comprises a Control Hold state.

19. A Controller comprising:
at least one memory device that maintains a call queue; and
a processor coupled to the at least one memory device that receives a call intended for a mobile station serviced by the base station, determines whether the mobile station
5 may be assigned a dedicated radio frequency (RF) resource in a service area of the mobile station, in response to determining not to assign a dedicated RF resource to the mobile station, adds the call to a call queue, subsequent to adding the call to the call queue, re-determines whether the mobile station may be assigned a dedicated RF resource in the service area, and in response to determining, subsequent to adding the call to the call
10 queue, that the mobile station may be assigned a dedicated RF resource, conveys an assignment of a traffic channel to the mobile station without first paging the mobile station.
20. The Controller of claim 19, further comprising a timer coupled to the processor,
15 wherein the processor, subsequent to adding the call to a call queue, starts the timer, wherein, when the timer expires prior to determining that the mobile station may be assigned a dedicated radio frequency (RF) resource in the service area, the processor aborts the call and deletes the call from the queue, and wherein the processor conveys an assignment of a dedicated RF resource by conveying an assignment of a dedicated RF
20 resource to the mobile station in response to determining, subsequent adding the call to a call queue and prior to the expiration of the timer, that the mobile station may be assigned a dedicated RF resource in the service area.

21. A method for assigning a radio frequency (RF) resource to a queued mobile station comprising:

determining whether the mobile station may be assigned a dedicated radio frequency (RF) resource in a first service area of the mobile station;

5 in response to determining not to assign a dedicated RF resource to the mobile station, adding a call associated with the mobile station to a call queue;

receiving measurements of strengths of a plurality of pilot channels from the mobile station;

10 based on the received pilot channel measurements, determining whether the mobile station has moved to a second service area;

in response to determining that the mobile station has moved to the second service area, determining whether the mobile station may be assigned a dedicated RF resource in the second service area; and

15 in response to determining that the mobile station may be assigned a dedicated RF resource in the second service area, assigning a dedicated RF resource to the mobile station in the second service area.

22. The method of claim 21, wherein assigning a dedicated RF resource to the mobile station in the second service area comprises in response to determining that the mobile station may be assigned a dedicated RF resource in the second service area, assigning a
20 dedicated RF resource to the mobile station in the second service area without first paging the mobile station.

23. A Controller comprising:

at least one memory device that maintains a call queue; and

5 a processor coupled to the at least one memory device that determines whether the mobile station may be assigned a dedicated radio frequency (RF) resource in a first service area, in response to determining not to assign a dedicated RF resource to the mobile station, adds a call associated with the mobile station to the call queue, receives measurements of strengths of a plurality of pilot channels from the mobile station, based on the received pilot channel measurements, determines whether the mobile station has moved to a second service area based on the received pilot channel measurements, in
10 response to determining that the mobile station has moved to the second service area, determines whether the mobile station may be assigned a dedicated RF resource in the second service area, and in response to determining that the mobile station may be assigned a dedicated RF resource in the second service area, assigns a dedicated RF resource to the mobile station in the second service area.

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24. The Controller of claim 23, wherein the processor assigns a dedicated RF resource to the mobile station in the second service area without first paging the mobile station.